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ABSTRACT

The Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP) program was implemented in a partnership between the University of Tennessee (UT) and two rural East Tennessee school systems. The study addressed the residual impact of UT GEAR UP on middle school teachers and schools that were left behind as the cohort progressed to project high schools. The study also examined the extent to which GEAR UP project elements were sustained approximately 1 year later. The UT GEAR UP project provided interventions to only one cohort of students, the class of 2006. Services began in 2000-2001, and, although they continue at the high school level, they have been completed for the middle school level. The study used data collected as part of the annual reporting requirements and findings of the project's external evaluator. In addition, teacher participants for the study of sustainability were the 50 teachers in the 14 middle schools that participated in the project years and administrators at those schools. Findings show that 1 year after the project terminated, teachers and administrators continued to hold favorable attitudes about the activities and interventions. There was some evidence of residual impacts of the program, but few project interventions were actually sustained at a meaningful level a year later. Lack of resources, lack of time, and lack of overall project leadership and staff were reported as barriers to sustaining GEAR UP initiatives. From the perspective of sustainability, these schools need immediate support. It appears unlikely that the project can be sustained at the high school level after the graduation of the project cohort. There is, however, some evidence that GEAR UP project efforts are consistent with recognized dimensions of meaningful school change. (Contains 37 references.) (SLD)

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The Sustainability of GEAR UP Project Initiatives in East Tennessee Middle Schools: A Study of the Residual Impacts of the University of Tennessee GEAR UP Partnership

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INTRODUCTION

A complete history of public education would have to include a substantial focus on the role and influence of periodic cycles of educational reform. The longstanding American penchant for educational "reform" has only increased in intensity during the past couple of decades, especially since the landmark 1982 publication of *A Nation at Risk* (Pulliam & VanPatton, 1995). The ongoing, periodic attempt to reform education shows no sign of abating in the foreseeable future. In fact, recent trends suggest that the pace and expectations of school reform are increasing in intensity. The recent No Child Left Behind (NCLB) legislation is a dramatic reflection of the existing national concern expressed by policy makers regarding the need for nationwide reform of schools to promote student and school performance. However, it is becoming increasingly obvious that schools confront many challenges in addressing reform expectations such as NCLB requirements. Among these many challenges, the need to dramatically improve the academic performance of schools with large populations of students from lower-income families appears to be among the most difficult and intractable.

One recent federal program, GEAR UP (Gaining Early Awareness and Readiness for Undergraduate Programs) was established in 1998 to promote school improvements aimed at increasing academic performance, graduation rates, and the participation in postsecondary education of students from low-income families. As one of 74 recipients of a GEAR UP partnership grant in 2000, the University of Tennessee (UT) GEAR UP partnership serves over 630 students in two rural East Tennessee school systems. A unique feature of this partnership is its focus on only one cohort of students (Class of 2006) as they progress from 7th grade to high school graduation in 2006. Only the Class of 2006 cohort members and their current teachers receive direct project assistance; teachers and students in other grade levels in the school are not part of the project and are prohibited from receiving project services. When the UT GEAR UP cohort left the middle schools for high school, all project activities terminated at the middle school level. This research addresses the project's residual impact on the middle school teachers and schools that were left behind with the cohort's progression to project high schools.

STATEMENT OF THE PROBLEM

The overall purpose of this research study is to determine the residual impacts of the UT GEAR UP partnership project on middle schools one year after the project terminated (at the middle school level) due to the progression of the cohort to high schools. This research also examines the extent to which GEAR UP project elements were sustained approximately one year later. Finally, this study also explores the perceived middle school challenges and barriers to project sustainability. The secondary purpose of this sustainability study is to provide information to aid both project and school staff in the development and implementation of sustainability strategies. However, from a broader perspective, the study of project sustainability and the barriers and challenges these GEAR UP schools encountered can advance the research literature on education reform, school change, and related sustainability issues which are of growing interest to policy makers, school officials and other promoters of school reform.

THE GEAR UP PROGRAM

The U.S. Congress (Public Law 105-244) established the GEAR UP program in 1998 to enhance academic achievement and promote higher education access for students from low-income families. The GEAR UP program, under the administration of the U.S. Department of Education, provides competitive grants to states and to local partnerships. State grants tend to focus on statewide initiatives including the establishment of a scholarship resource base promoting higher education participation by eligible students. Local grants provide direct services to students through partnerships comprised of higher education institutions, public schools with students from predominately low-income families, as well as community organizations and local businesses. The GEAR UP partnership investment of the Department of Education is significant. In fiscal year 2000, the Department of Education provided approximately $200 million in grants to states and local partnerships. By FY 2003, the GEAR UP program totaled $293 million.

The UT GEAR UP partnership project began in 2000 with the award of a five-year grant of approximately $2.3 million under the leadership of the university's Appalachian Rural Systemic Initiative (ARSI) office. The University of Tennessee GEAR UP partnership public schools include the schools of the Cocke County and Scott County school systems (East

Tennessee), the University of Tennessee, two East Tennessee community colleges (Roane State Community College and Walters State Community College), and over two dozen project and community partners in each project county. The University of Tennessee GEAR UP partnership project embodies the national GEAR UP program priorities (Appendix A) through nine partnership goals established to focus and guide the project throughout the five-year grant period:

1. Improve the academic performance of GEAR UP students;
2. Improve the classroom effectiveness of GEAR UP teachers;
3. Increase the educational expectations of GEAR UP students;
4. Increase GEAR UP student knowledge about post-secondary education;
5. Increase GEAR UP parent knowledge about post-secondary education;
6. Improve GEAR UP cohort high school graduation rates;
7. Increase GEAR UP cohort college enrollment rates;
8. Support academic development of GEAR UP schools; and
9. Promote community involvement in GEAR UP schools.

The UT GEAR UP partnership addresses project goals through a variety of interrelated interventions: (1) hands-on instruction of students in the core subject areas of language arts, mathematics, science and social studies; (2) teacher professional development focused on enhancing subject area content knowledge and curricular alignment with the Tennessee Gateway examinations recently mandated for high school graduation; (3) instructional equipment and supplies supporting student hands-on learning; (4) student awareness of college opportunities and academic requirements for entry in postsecondary institutions; (5) student exposure to cultural and social experiences including plays, concerts, museums, and exhibits reinforcing class content and personal development and awareness; and (6) student exposure to meaningful careers and professions as well as associated educational requirements and expectations. A key project focus is a commitment to sustain GEAR UP sponsored activities and services beyond this federal grant project terminating in 2006.

The UT GEAR UP project provides interventions to only one cohort of students (Class of 2006) that began with the cohort's 7th grade academic year in 2000-2001 and will continue on through the cohort's high school graduation. All students, teachers, and other school officials actually serving the GEAR UP cohort in a given academic year are included in the interventions. At this time, cohort students have completed the 8th grade (middle school) and progressed to the

Cocke County and Scott County system high schools where they are now in the 10th grade. While the project is not yet completed for the cohort, it has been terminated for the middle schools previously serving the 2006 cohort. A major element of the national GEAR UP program, as indicated by national program objectives, is to promote changes to instructional programs that are sustainable by the schools after the project terminates. In light of this objective, this research specifically addresses the residual impacts of the UT GEAR UP project on middle schools no longer serving the project cohort (i.e., the sustainability of project impacts on the middle schools).

LITERATURE AND THEORETICAL FRAMEWORK

Several aspects of the existing body of research literature provide useful background and context information for this study. Four elements of the existing literature are especially relevant: the history of school reforms, the impetus for change, the infrastructure for supporting change, and the types of school change. This brief review of relevant literature in each of these areas provides a theoretical foundation for this study. Florian's (2000) definition of sustainability is particularly germane to sustainability research on the GEAR UP partnership in the middle schools. Florian defined sustainability as: "the perception of those involved in the educational system of continued implementation and practice of a change that occurred initially as a consequence of a reform program." (p. 9). A consist and broader definition acknowledged that innovations may evolve after implementation as it adapts to school culture (Hargreaves and Fink, 2000). This broader conception of the concept of sustainability is important; the potential for school reform "adaptability" beyond initial implementation tends to increase the chances of sustainability (Fullan, 2001; Sarason, 1982).

History of Reform:

Systematic efforts focused on school change and improvement have a history almost as long as the history of modern schools (Pulliam & VanPatton, 1995). School reforms are cyclical; when school improvement strategies are attempted, they often do not affect the desired change and are terminated, and then they are ultimately recycled as part of a cyclical pattern (Slavin, 2003; Fullan & Pomfret, 1977; Sarason, 1982; and Elmore, 1995). Similarly, Slavin (2003) found that efforts to sustain school reforms have traditionally been lacking in the periodic reform

cycles. Equally problematic, the subsequent reform initiatives often contradict the fundamental assumptions that were the foundation of prior reform efforts:

> Untested innovations appear, are widely embraced, and then disappear as their unrealistic claims fail to materialize. We then replace them with equally untested innovations diametrically opposed in philosophy, in endless swings of the reform pendulum (Slavin, 2003; p. 1).

To further complicate the challenge of implementing and sustaining initiatives for school change, the schools themselves are typically involved with managing multiple reforms simultaneously and often the simultaneous reform initiatives include incompatible elements (Hatch, 2000).

The pace and the types of school reform initiatives do not appear to be slowing down. Fullan (2001) noted that the pace of reform is increasing as the growing number of organizations supporting reform seek to expand their efforts to as many schools/districts as possible. However, despite the long history and growing pace of reform, there is not a significant body of research literature regarding the continuation of project elements after the funding is terminated. According to Gersten, et. al (2000), sustainability and the dynamics of change efforts are both areas that lack a solid research base:

> Surprisingly, little empirical research has been conducted; not only is the long-term sustainability of effective practice unknown, even research regarding how best to initiative change is still in a relatively formative state. (Gersten, Chard, & Baker, 2000; p. 445)

A key reason for the lack of research on the sustainability of reform initiatives may be related to the absence of innovations that have been continued (Tyack and Cuban, 1997).

While there are many perspectives regarding the underlying causes related to the reform cycle, Sarason (1982) made a compelling case that school reforms tend to be based upon rational approaches that are often inconsistent with the underlying cultures of schools. Fullan and Miles (1992) suggested that because of the inherent challenges of rational planning within complex social settings such as schools, there can be no standardized "blueprints" for change; each school situation (culture) may need to be uniquely addressed. One common element in the literature on school change is obvious: school change, and the sustained continuation of change, is an extremely complex undertaking.

Impetus for Change

The impetus for school change can emanate internally from within the school or from an external source. As the long history of school reforms and reform cycles suggests, there is a strong tradition in our culture of school reform that is essentially driven by external forces. Humberman and Miles (1984) identified two "paths," or basic strategies, to school change. The first path is a "top-down" strategy representing an external mandate requiring school change. The second path represents change resulting from the commitment of teachers to initiate, or commit to, changes they perceive as useful. Huberman and Miles identify the second "teacher focused" path as the "high road" or the preferable strategy to school reform. School change mandates tend to encounter resistance as teachers come to resent external pressure. Whether teachers perceive these mandates as well-meaning or not, they often view externally generated mandates as misguided or irrelevant from the perspective of the day-to-day classroom setting (Cunningham and Gresso, 1993). As such, external school mandates are also less likely to be sustained (O'Neil, 2000).

Infrastructure for Change

Previous attempts at school reform have been restricted by the lack of school capacity to infuse and maintain the change (Fullan, 2001). The literature suggests several foundational elements that must be in place for change to be sustained in schools. Time is one of the most critical factors. The amount of time required for a change to become integrated into a school is substantial; the typical minimum time period is thought to be approximately five years (Fullan, 2001; Cunningham & Gresso, 1993) depending on situational factors such as school size and the type/scope of the change being addressed. Along with the requirement for a substantial amount of time for a change to take hold, it is also necessary for teachers to be sufficiently trained in the new techniques or approaches before the active part of the reform project is terminated. The literature suggests that it is critical to sustainability that teacher mastery of new skills occurs before the initial implementation is completed (Huberman & Miles, 1984; Kinder, Gersten, & Kelly, 1989).

Leadership is also addressed in the literature as an essential element of sustainability. Leadership for sustainability includes internal and external elements from the perspective of the school system. Leadership at the district level is a critical element of sustainability (Berman & McLaughlin, 1977; Humberman & Miles, 1984, Miller and Fleeger, 2000). The literature also

suggests an important role for influential external individuals or groups to actively support the change and its continuation. Cuban referred to these active external supporters of change as constituencies and noted that historically major reforms that are sustained tend to have influential external constituencies (cited in O'Neil, 2000). French (2000) identified several key leadership and change capacity roles that are needed to support sustainability: (1) a reform champion with the vision and means to keep the reform on the agenda, (2) a project designer with the ability to establish and maintain the technical base needed for ongoing implementation, (3) early adopters representing teachers initially committing to and supporting the change, and (4) followers who are willing to support the change, if they can perceive the value of an innovation. Of course, financial resources are critical. However, the amount of resources initially supporting a reform may be unrelated to the probability that a reform will continue (Berman and McLaughlin, 1977; Gersten, Chard, and Baker, 2000). A key challenge for schools and other organizations receiving grants that sponsor and promote innovation is the need to secure a source of continuing funds after the grant is terminated (Cutler, 2002).

Types of School Change

The types of reform efforts focused on schools are broad and range from non-instructional changes such as scheduling and school management to core instructional changes addressing curricular issues and teacher professional development (Hess, 1999). For example, Elmore (1996) distinguishes between two types of school change: (1) change addressing non-instructional elements of school such as school calendars, and other non-curricular elements, and (2) changes that address central pedagogical elements of the school representing core teaching practices. Gersten, et. al. (2000) identified a similar dichotomy (e.g., structural change and core-of-teaching change), and indicated that distinctions regarding the type of change is critical for understanding the change context. For example, the authors found that structural changes are more influenced by cultural norms; changes in core teaching have somewhat more freedom from local cultural norms, as they address issues related to professional practice.

Coburn (2003) addresses the concept of "scaling up" educational reforms referring to the expansion of successful innovations to broader bases of applications or settings. A key scaling up variable is the concept of reform "depth" referring to the extent a reform affects teachers' beliefs/ norms related to "underlying pedagogical principles." Coburn found that understanding the depth of a reform has been a problem for researchers; too few researchers have determined whether school changes represent visible surface efforts or whether they have reached a deeper level. This

concept of reform depth is also consistent with Fullan's consideration of symbolic responses to change mandates (Fullan, 2001). Substantive research, most notably the early work of Goodlad, Klein, and Associates (1970), provided empirical evidence that many reforms that have been viewed as successful by the participating school officials were generally more surface or superficial in nature. Often the central issue is a lack of understanding by school participants of the underlying principles of the reform – the reasoning behind the change (McLaughlin and Mitra, 2000). According to Fullan (2001), a basic understanding of the underlying principles of the change by schoolteachers and other stakeholders is viewed as the "the foundation of lasting reform" (p. 45). The issue of the depth of reform is import for this study of GEAR UP sustainability. If the changes brought about by this GEAR UP project are not meaningful (i.e., if they do not have depth) then the issue of whether or not they have been sustained is of little consequence or theoretical interest.

Few researchers have addressed the fundamental issues of school reform as insightfully as Michael Fullan. Fullan (2001) advanced the concept of school change from the perspective of teachers:

> Real change, then, whether desired or not, represents a serious personal and collective experience characterized by ambivalence and uncertainty; and if the change works out it can result in a sense of mastery, accomplishment, and professional growth. The anxieties of uncertainty and the joys of mastery are central to the subjective meaning of educational change, and to success or failure thereof (p. 32).

From the perspective of this sustainability study of GEAR UP, Fullan's focus on the teacher provides a critically important contribution to the literature, especially as it is reflected in his conceptualization of the dimensions of meaningful school change. From this perspective, meaningful school change is characterized by Fullan along three dimensions each of which has the teachers as the focal point. These include: 1) the use of new materials (instructional resources, curriculum), 2) the use of new teaching approaches (strategies and activities); and 3) the alteration of beliefs (pedagogical assumptions) among teachers. For meaningful change to occur simultaneously on these three dimensions, interventions must be strategically designed, realistically implemented, and subsequently nurtured (i.e., sustained) for a substantial period of time. These dimensions also suggest the complexity of the tremendous challenge to sustaining school change.

Summary

This brief review of the literature suggests that the existing knowledge base regarding the sustainability of educational reforms is limited. There are few studies documenting the successful sustainability of educational reforms as well as major gaps in the literature addressing the processes and resources needed to promote the continuation of school change. Despite these limitations, the literature suggests that a few key concepts are particularly relevant to the study of the sustainability of school change: 1) sustainability is the continuation (and possible evolution) of a school change after the grant or pilot project introducing it is terminated; 2) sustainability is of greatest concern for school changes addressing meaningful dimensions of the learning process; 3) teacher support for curricular change is critical, especially when the change was originally sponsored by a source external to the school; and 4) while financial resources may be needed for changes to be sustained, it is at least, if not more, important for a supporting infrastructure (including constituencies, leaders, and staff support) to be in place before the project is terminated. In light of the literature on school change and sustainability, this paper addresses the changes introduced by the University of Tennessee GEAR UP partnership in East Tennessee middle schools and seeks to determine if meaningful changes have occurred, what impact the changes may have had, and to what extent elements of these changes have been sustained.

RESEARCH QUESTIONS, METHODS, AND PROCEDURES

RESEARCH QUESTIONS

There are five research questions guiding this study: 1) To what extent were project elements implemented at the 14 middles schools served by the UT GEAR UP partnership?; 2) What changes at the middle schools may be attributed to the project from the perspective of students, teachers and school principals?; 3) How do middle school teachers and school administrators view the overall effectiveness of the program one year later? ; 4) Approximately one year after the project was terminated at the middle schools, to what extent were project elements sustained?; and 5) What barriers and challenges were confronted by middle school teachers and principals in sustaining project elements? Answers to these questions will identify the extent of project implementation, identify the perceived levels of continuation (sustainability), and provide an initial understanding of the perceived barriers to continuation of interventions after project termination.

METHODS

This research uses data collected as part of the UT GEAR UP project annual reporting requirements by staff (for the annual project reports) and the external evaluator (for project annual evaluations). Several sources of data are included, addressing two different time-periods. These include:

1. Data collected in March 2002 for the annual report/evaluation (as the cohort was completing the 8th grade):
    - Cohort student surveys
    - Cohort teacher surveys
    - Interviews with students, faculty, parents, school stakeholders
    - Project data collected/reported in the Annual Performance Report (APR) and external evaluation
2. Data collected in March 2003 for the annual evaluation (one year after the project ended at the middle schools with the cohort's progression to high schools):
    - Survey of middle school teachers previously serving the cohort
    - Interview of middle school principals previously serving the cohort

The teacher participants for the study of residual impacts (sustainability) one year after the project terminated at the middle schools included all 50 of the 7th and 8th grade teachers in the

14 middle schools who had served the GEAR UP cohort during the project years of 2000-2001 and 2001-2002. Of the 14 middle school project principals, a sample of four principals was purposively selected by the evaluation team with input from UT project administrators and county project facilitators. This sample provided for a representative cross-section of middle schools from the perspective of school sizes and equal representation of both project counties. As this first study (of residual impacts) is preliminary, the use of a purposive sample for exploratory research was deemed appropriate; future annual follow-up studies on project "residuals" at the middle schools as part of annual project evaluations will include all 14 project middle school principals.

RESEARCH DESIGN AND PROCEDURES

The descriptive and qualitative "mixed-methods" research design used for this study is appropriate for exploratory research addressing the current status and context of an educational program or intervention. Consistent with the design, this study uses data gathered from project documents, surveys, and interviews that enable a preliminary description of project sustainability at the 14 middle schools from the perspective of students, teachers, and school principals. For the data describing program elements at the time the cohort students were in the middle schools, the researchers used project reports as well as evaluation surveys and interviews as described and documented in the annual reports. Similarly, with regard to the study of residual impacts on project middle schools one year later, all 7th and 8th grade teachers of the GEAR UP cohort were included as part of the annual evaluation data collection process beginning in March of 2003. All data collection procedures followed similar processes which are also described in annual project evaluations. The middle school teacher survey achieved a strong response rate at 78 percent (50 surveys sent out and 39 returned). All four principals contacted elected to participate and were interviewed by the senior author during March of 2003. The project's external evaluator (senior author) developed and administered all project survey and interview instruments in consultation with project staff (remaining authors and others) and school system personnel.

FINDINGS AND DISCUSSION

Research Question 1: To what extent were project elements implemented at the 14 middles schools served by the UT GEAR UP partnership?

Student Interventions

The University of Tennessee GEAR UP partnership project served a single cohort of students (Class of 2006) in 14 middle schools in Cocke and Scott counties participating in the project during the 2000-2001 (7th grade) and 2001-2002 (8th grade) school years (see Appendix B for a list of middle schools). While the project focused on the middle schools, project staff sponsored interventions addressing five separate audiences including: 1) students; 2) teachers; 3) parents; 4) the schools; and 5) the community. For the purposes of this research, the audiences of primary interest are the middle school teachers, the cohort students, and the school administrators participating in the project during this time period. While the project continues to support high school initiatives for the cohort (currently 10th graders) and related school audiences, the middle school initiatives have now been formally terminated for more than a year and are the subject of this initial study of project sustainability.

The 2000-2001 and 2001-2002 project annual reports indicated that each project middle school 7th and 8th grade teacher and cohort student participated in multiple GEAR UP interventions and activities. The GEAR UP middle school ***student interventions*** focused on four primary project objectives: 1) improved academic performance in math, science, and language arts; 2) enhanced academic preparation for postsecondary education; 3) awareness of professional career opportunities, and 4) increased knowledge of, and interest in, and ultimately enrollment in postsecondary education. These objectives were addressed through several types of interventions:

- Hands-on instruction actively involving students in the learning process
- Career exploration experiences including interest/skills inventories that linked to career paths and guest speakers/professionals visiting the schools
- Fieldtrips designed to reinforce lesson plans including visits to streams (biology), visits to plays (language arts), visits to museums (science), and visits to community sites enabling the application of new skills (mathematics)
- Social and personal development opportunities including visits to athletic and social events

- Visits to colleges to learn about college opportunities and become comfortable with campus environments
- Summer academies providing opportunities for students to explore upcoming academic subjects in an intensive but enjoyable setting

Throughout all student interventions, project staff linked GEAR UP activities to one or more of the three key project priorities for students (i.e., academic performance, preparation for college, and career awareness). Students were generally expected to participate in GEAR UP initiatives offered during the school day and were able to elect to attend events offered outside normal school hours (e.g., family nights, athletic events, and summer academies). Student interventions and activities were not necessarily uniform across all schools. Some project activities were specific to an individual school or to all the schools in a particular county, based upon local school needs and opportunities available within the school communities. However, the distribution of project activities was designed to ensure that each student experienced a mix of specified activities while allowing for local school and district flexibility. Overall, all students spent a significant number of hours in project activities. For example, in 2000-2001 project cohort students experienced an average of 345 hours of project interventions; in 2001-2002 these students experienced an average of 447 hours of project interventions.

Student responses to evaluation surveys and interview questions conducted at the end of their 8th grade year confirm high levels of student participation in project initiatives. For example, survey and interview participants cited numerous examples of participation in project activities including instructional initiatives, career events, college visits, career workshop presentations, as well as college preparation workshops. Over 81 percent of student survey respondents indicated that they attended half or more of all project activities. Students most frequently cited participation in activities that had them leaving the school. These included: job shadowing (78.7% of respondents), visiting a job site (65.8% of respondents), attending cultural events (57.8% of respondents) and visiting a college (56.7% of respondents). As expected, lower percentages of respondents reported participation in activities that were optional. For example, approximately 20 percent of the respondents indicated that they attended the summer academies. This finding is consistent with actual enrollment levels recorded on summer academy attendance logs.

All student enrichment interventions concluded with students completing an evaluation form enabling them to record their reaction to the event and indicate their level of satisfaction.

Overall, students reacted favorably to project interventions conducted when they were in 8th grade. For example, on a five-point scale ("1= poor" to "5 = excellent") students consistently rated GEAR UP events as either a "4" or "5"; it was rare for more than 15 percent of all participating students to evaluate an event in the 1 to 3 range. At the end of the cohort's 8th grade school year (March 2002), students were again provided an opportunity to rate their satisfaction with GEAR UP experiences they had throughout the year (Table 1).

Table 1. Student Satisfaction with Project Activities During 8th Grade (% of respondents satisfied/very satisfied)

ACTIVITY	(%) Satisfied/ Very Satisfied	N
Job Shadowing	95.5%	317
Visit College	93.4%	259
Visit Job site	92.1%	291
Class visit (professional)	91.9%	272
Computer workshops	90.3%	239
Cultural Event	90.1%	282
College Workshop	90.1%	152
Career Workshop	88.7%	205
Tutoring	88.8%	111
Family Nights	86.5%	156
Summer Academy	85.0%	127
E-Mentor	77.1%	118
Counseling	76.3%	127

Overwhelmingly, as depicted in Table 1 data, students tended to indicate that they were highly satisfied with their GEAR UP project experiences.

In the annual evaluation interviews of students conducted when the cohort was nearing completion of 8th grade, students re-affirmed their overall positive reaction to the GEAR UP project. Interview participants acknowledged the changes in instruction brought about by teacher interventions. For example, several student interview participants commented on the hands-on instruction promoted by the GEAR UP project and offered a favorable reaction. Typical interview responses also suggested that students recognized the relationship between related project elements. As one student reported on a GEAR UP activity: *"I remember the play we saw.*

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'Freedom Train.' We read the play in class before we attended – it was fun to read about (it), see it, and talk about it in class." Several students also indicated that project activities represented new experiences for them, experiences that had a dramatic impact: *"At the book fair, we each got a book; everyone left with a book."... "We went to a play. I have never been to a play before. We read about it first, and then we saw the play."* There were several anecdotal references by project school coordinators in each county about the students' "first" experiences including: 1) the first time a student left the county; and 2) the first time a student dined in a restaurant. Overall, these student survey and interview comments are consistent in indicating student participation in GEAR UP activities and their high levels of satisfaction with these project experiences.

Teacher Interventions

The primary GEAR UP middle school ***teacher interventions*** included professional development training and instructional resources (equipment and consumables). Overall, 50 middle school teachers participated in the project when the student cohort (Class of 2006) was in the 7th and 8th grades. Staff identified several project focal points within all project sponsored teacher professional development activities. For example, professional development efforts focused on promoting the teaching of the core GEAR UP subjects of primary focus (math, science, and language arts). Wherever appropriate, teacher professional development in these subject areas was linked to the new Tennessee Gateway high school curriculum and exit examinations. Moreover, professional development initiatives focused on providing teachers with new teaching strategies promoting "engaged," hands-on instruction. Table 2 identifies some of the major project professional development activities offered at the middle schools. The teacher professional development focus in any given year was predetermined to coincide with the Gateway testing schedule (i.e., the initial focus was on Gateway Biology – the first required assessment students would take in high school as a graduation requirement). Along with these professional development activities, the project supplied teachers with instructional equipment and consumable supplies. The total dollar value of the equipment provided came to $169,000 for the two years the program was at the middle schools. The major equipment items purchased included microscopes, calculators, lab supplies, and various instructional materials and consumables.

Table 2. Major GEAR UP Middle School Teacher Professional Development Activities (2000-01, 2001-02)

Subject Area	Activities	Number of Participants
Science	Gateway Biology	19
	Gateway Biology	20
	Gateway Biology	22
	Gateway Biology	20
Math	Math Workshop (Manipulatives	8
	Flex-cam Use	1
	Math Workshop (Manipulatives	10
	TI-83 Calculator Workshop	6
	TI-83 Calculator Workshop	6
	Gateway Algebra	6
	Gateway Algebra	5
	Gateway Algebra	4
Language Arts	Reading	5
	Model Reading Lessons	2
	Newspaper Workshop	6
	Newspaper Workshop	8

Teachers rated professional development experiences favorably after each event; these positive ratings were also confirmed at the end of the year. On the teacher survey conducted for the annual project evaluation near the end of the cohort students' 8th grade year (March 2002), over 83 percent of the teachers reported that they attended almost all of the GEAR UP sponsored teacher activities. Teachers also registered their reaction (satisfaction) related to GEAR UP professional development opportunities on the survey. Over 93 percent of teachers reported that GEAR UP workshops were at least "helpful," and the same percentage (i.e., 93%) of respondents reported that GEAR UP project initiatives for teachers had "enhanced their teaching." Over 84 percent of teachers confirmed their receipt of project supported instructional equipment and supplies.

Teachers interviewed at the same time (i.e., March 2002 when the cohort was completing the 8th grade) for the annual project evaluation also reacted favorably to the professional development opportunities offered by the GEAR UP program. Typical teacher comments included the following:

- *"GEAR UP has provided good training, instructional materials and supplies. They really support us here."*

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- *"The enthusiasm that the workshops create is important but what makes GEAR UP different is that you end up with materials that you can actually use."*
- *"I would not change the (GEAR UP) program. This program is working."*
- *"The GEAR UP workshops for teachers are very good. They are exciting, interesting, and dynamic."*
- *"GEAR UP has been a big plus for our schools and a plus for the kids."*

Surprisingly, even with 10 percent of the teacher survey respondents reporting that they had not participated in GEAR UP teacher activities, there were no negative comments offered about the GEAR UP project on the survey or during the interviews.

Other GEAR UP Project Interventions

In acknowledgement of parents' primary role in encouraging their children to pursue continuing educational opportunities, the GEAR UP project sponsored several initiatives to encourage parent participation in the schools. These interventions included: 1) parent nights; 2) the invitation of parents to attend GEAR UP and other school events; 3) the sending of parents literature on student study skills and strategies, and 4) supplying parents with information on college preparation requirements, admissions and costs. The GEAR UP partnership also supported school system initiatives for the middle schools. A major school system initiative supported by the project was the alignment of the curriculum with the new high school Gateway subject area examinations (new high school graduation requirements in Tennessee). The project also sponsored interventions to support community involvement with the schools through the creation and nurturing of new school partnerships with local businesses and other organizations.

During the annual project evaluation conducted when the cohort was nearing completion of their 8th grade year, other school and community stakeholders were also interviewed (March 2002). These stakeholders commented on their knowledge of the program and reported on the feedback they had heard about GEAR UP from students and teachers. Comments from these participants also tended to be very positive about the GEAR UP program. For example, school administrators (principals) of the middle schools tended to comment on the GEAR UP teacher training initiatives and the instructional equipment provided. As one principal stated: "*Teachers report that they like the training – it has been helpful; more importantly, they get the teaching materials and supplies which they can use and apply right away.*" School board members tended

to note how the GEAR UP program provided badly needed school resources – and indicated what a difference the resources have had on the schools. As one school board member stated: *"We have good teachers, and good principals. GEAR UP has provided us with the things we didn't have, and that has made all the difference."*

Overall we find that there is substantial evidence that the GEAR UP project interventions actually occurred in middle schools. We also find evidence that project interventions were favorably perceived by most of the project participants (teachers and students) as well as other key school stakeholders at the time (i.e., at the end of the 8th grade year for the cohort).

Research Question 2: What changes at the middle schools may be attributed to the project from the perspective of students, teachers, and school principals?

Changes in Project Middle Schools

When the GEAR UP project was at the 14 middle schools, teachers and students perceived educational changes resulting from the project. Student focused changes were reported to have occurred in four areas: 1) student interest in learning, 2) college and career awareness; 3) student academic performance, and 4) student academic decision-making related to postsecondary education. Teacher focused changes were identified as enhanced subject content knowledge and improved teaching strategies resulting from professional development as well as receipt of instructional equipment and supplies. While the project addressed other initiatives, such as parent and community activities, these interventions were subordinate to the main focus of the project: teaching and learning. For example, parent and community initiatives focused on gaining support for students, teachers, and schools/school systems. Parent interventions addressed a long-term perspective (i.e., multi-year) and changes and outcomes were not limited to the students' middle school years.

Student Interest in Learning

One of the major school problems identified in the original UT GEAR UP partnership grant proposal was the relatively low higher education participation rates of students graduating within these two project counties. This GEAR UP cohort represents a large population of potential first generation college students (approximately 24% of the cohort's parents did not

complete high school and less than 17% graduated from college). Given the lack of a strong tradition of higher education participation, one of the early priorities of GEAR UP project staff was to offer students learning experiences that were "enjoyable" and that would result in students taking a greater personal interest in school and higher levels of education.

During the student interviews for the annual project evaluation at the end of the cohort's 8th grade year (March 2002), students were asked if they had any GEAR UP learning experiences that they felt were "enjoyable." Interview participants reported that they enjoyed many GEAR UP activities and several students readily provided examples:

- *We made up a crime scene with kids taking on the role of all the people involved in solving a crime. We set it up in the library room and then we had to solve the crime. Then we had to do the trial, and we became the judge, attorneys, and we acted the court scene out.*
- *Well, I liked the time we had to make t-shirts. We were able to draw on them, and then we learned how to "tie-dye" and we did this ourselves mostly.*
- *We got to do a budget for our activity (a party) and go into stores and shop as a team – that was fun and we learned about buying stuff when you only have a limited amount of money. Each team had to be responsible to buy things for their part of the party – and we had a budget to control. The team that got all the stuff they needed without going over (the budgeted amount) was the winner and got the reward.*
- *In math, we measured the [City name] pool to learn about figuring out volume. We also had fun at the time playing football and water polo.*
- *"It was really good to go to the Summer Academy because it helped make school easier for this year. You learned a lot, but you also had fun."*
- *"I remember the graphing calculators which we use constantly. We have more fun with these activities – they are more hands-on."*

From the perspectives of these students, the project enrichment activities seem to have made an impact. The activities were perceived by students to have been successful in promoting learning while also offering an engaging and enjoyable experience.

We find corroborating evidence from other sources about the students' enjoyment of learning activities. For example, during evaluation interviews at the end of the cohorts' 8th grade year, parents provided their perceptions of the GEAR UP project. Several of their comments addressed the student activities from the learning and enjoyment perspective:

- *"GEAR UP is a program that is very hands-on and engaging for the students. . ."*

- *"They [students] are enthused – they like GEAR UP . . ."*
- *"A good example is the chemist from the University of Tennessee. They really liked his [chemistry] experiments – they talk about it all the time."*

We do find evidence that many students found project sponsored activities interesting, engaging, and enjoyable. The fact that students shared these experiences with their parents may be an indication that the activities made a positive impression. Based upon this limited evidence, the project appears to have had success with at least some of the students from the perspective of increasing student interest in school and learning.

Career and College Awareness

A second student-focused project strategy was to help students become aware of meaningful careers, possible career alternatives, and the linkage between career opportunities and postsecondary education requirements. Both project school systems participated in a job-shadowing program where students spent one day working alongside a professional in a career of interest to the student. The GEAR UP project used these job-shadowing activities to stress the relationship between careers and postsecondary education. As a GEAR UP project activity, students were asked to write a reflective essay describing their job-shadowing experience and share their perceptions of how they would like to work in the type of career observed. In some cases, students chose to job-shadow a parent. In the reflective essays, students tended to express their enjoyment of the experience, surprise at the nature and perceived difficulty of the work, and in a few cases a new appreciation of what their parents had to do to provide the family income. According to GEAR UP project staff, the focus of the job-shadowing exercise was to have students think in terms of possible careers and what they might need to accomplish educationally to prepare for particular professions.

Also, in support of college-career initiatives, students participated in a program to match their personal interests with particular career options, as well as understand what types and levels of postsecondary training were required for their initial career interests. A sophisticated career interest inventory program sponsored by the University of Tennessee (called the Tennessee Career Information Delivery System- TCIDS), was used by all cohort students. Project staff identified some initial trends during these TCIDS workshops when the cohort members were in the 7th and 8th grades. Typically, students tended to select careers of interest to children of their age, (i.e., children first beginning to think in terms of careers). For example, a majority of male

students chose careers related to their interests in automobiles; these students identified an interest in careers related to racecar drivers and mechanics. Female students tended to express an interest in careers that included cosmetology, education and nursing. For each career of interest selected by students, the TCIDS system reported to students the associated salary range and the post-secondary education requirements. (Each student received a printout of this information.) The project staff tracked the career choices made when the cohort was in the 7th grade and the 8th grade and noted little change between the two years.

Students were also presented with more general information on the overall importance of college participation. This initiative included project sponsored activities making students aware of local colleges through on-campus visits. While these cohort students were still at an age where college and career decisions were years away, some students appeared to be developing an interest in college and careers. Student interview comments offered during annual evaluation interviews conducted before the cohort left 8th grade (March 2002) were indicative of these developing interests. One student noted: *"I like the trip to the aquarium – I think the trip really helped me think about a career in Marine Biology."* Another student indicated: *"I was not sure I wanted to go to college, but after GEAR UP I am now sure I am going to go to college."*

Student Academic Performance

A third project strategy for students addressed increasing student academic performance. At this time, there is insufficient data on the GEAR UP project related to its impact on student academic performance. When the project cohort was in the 7th and 8th grades, the primary student standardized academic performance measure, the Tennessee Comprehensive Assessment Program (TCAP) examination scores, did not indicate consistent, significant improvement between the cohort's 7th and 8th grade years. There are two potential explanations for the lack of changes in the test results. First, there was only a minimal amount of time between the interventions and the testing. More importantly, the middle school project interventions related to curriculum and teacher professional development was focused on preparing students for the Gateway examinations that students would be required to take during their high school years in order to graduate. The content of annual TCAP examinations was not the focus of GEAR UP teacher or student interventions when the cohort was in the 7th and 8th grades. However, project staff noted an increase in the numbers of students having an "A" or a "B" average between the 7th and 8th grade years (Table 3).

Table 3: The distribution of Cohort Student Grade Point Averages (7th and 8th Grades)

Cohort Year	Mathematics Averages			Language Arts Averages			Science Averages		
	Below 70	70-80	Above 80	Below 70	70-80	Above 80	Below 70	70-80	Above 80
7th Grade	118	153	251	99	149	274	101	144	277
8th Grade	80	129	329	62	135	341	64	124	350

From the perspective of the students self-concept, a large number, but less than a majority, of the cohort indicated that they are better students as a result of GEAR UP. For example, on the evaluation survey conducted at the end of the cohort's 8th grade, 42.9 percent of the survey participants perceived themselves to be better students due to GEAR UP. This table (Table 3) also reflects the growth in the number cohort participants that is experienced on an annual basis in these school systems.

Student College Academic Decision Making

On the student surveys conducted for the annual project evaluation at the end of the cohort's 8th grade year (March 2002), 56.7 percent of the survey respondents indicated that GEAR UP experiences changed their plans about attending college. Subsequent student academic decisions tend to confirm this growing student interest in college. At the end of their 8th grade year, students prepared for high school by making a decision with regard to their intended high school track of study (a Tennessee requirement). Students in both school systems have three alternatives for high school tracks: (1) college prep; (2) dual college and career; and (3) technical career. Students in both the college-prep and dual tracks take college preparation courses. The cohort's selection of a high school track was somewhat more likely to focus on college tracks than the decisions of students in the preceding class (Class of 2005). The student decisions are reflected in Table 4.

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Table 4: Cohort (Class of 2006) Selection of High School Track Versus the Preceding Class (2005)

Schools	Preparation Track			Total
	College	Technical Career	Dual	
Cocke County (cohort) 9th	224 *(53%)*	89 *(21%)*	111 *(26%)*	424 *(100%)*
9th grade class preceding cohort	191 *(47%)*	86 *(21%)*	130 *(31%)*	407 *(100%)*
Scott County (cohort) 9th	68 *(33.5%)*	70 *(34.5%)*	65 *(32%)*	203 *(100%)*
9th grade class preceding cohort	68 *(27%)*	146 *(58%)*	39 *(15%)*	253 *(100%)*

While these student decision data indicate some greater interest in the college track by the cohort, the tracking of student changes in preparation track throughout high school will be necessary to determine the extent to which this initial trend is sustained.

Teacher Interventions

Middle school teachers indicated that project interventions, primarily professional development supported by instructional supplies and equipment, had an impact on their teaching. The annual project evaluation survey of the 8th grade teachers when the cohort was completing their studies at the middle school (March 2002) indicated several perceived project teacher impacts. Table 5 summarizes teachers' responses to survey questions addressing the impact of professional experiences sponsored through the GEAR UP project.

These responses reflect the depth of the perceived impact of the project on teacher professional development. Large percentages of teachers reported project impacts related to increased preparation in the teaching content area (87.9%), the provision of instructional equipment and supplies (84.8%), awareness of state tests (81.8%) and knowledge of instructional delivery methods (78.8%). The area of lowest reported impact, "better understanding of college entrance requirements," is still perceived to have had an impact by more than half the teachers (54.5%). However, the "bottom line" objective for GEAR UP sponsored teacher professional development and related initiatives was to enhance classroom teaching. In that regard, 93.9 percent of the 33 teachers participating in the survey answered "yes" to the following survey question: "I have enhanced my teaching by participating in GEAR UP."

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Table 5: GEAR UP Project Teacher Impacts (Survey of 8th grade cohort teachers)

Perceived Teacher GEAR UP Project Impacts	% Responding "Yes"	N
I am better prepared in my teaching content area	87.9	33
I have received equipment and supplies for instruction	84.8	33
I am more aware of the contents of state tests	81.8	33
I am better prepared with regard to instructional delivery methodologies	78.8	33
I have a better understanding of college entrance requirements	54.5	33

The identification of positive impact on teacher professional development does not, in itself, provide any indication as to the extent of the impact. On the annual evaluation survey conducted at the end of the cohort's 8th grade year, teachers were asked to indicate the extent of the impact of the project on them as teachers in three areas: 1) their knowledge of curriculum, 2) their knowledge of instructional delivery methods, and 3) instructional equipment and supplies available for learning. Table 6 summarizes their response to these questions:

Table 6: Extent of GEAR UP Project Influences on Teachers

Extent of GEAR UP Project Influences	Moderate (%)	Major (%)	N
Your knowledge of curriculum	48.5	39.4	33
Your knowledge of instructional delivery methods	60.6	30.3	33
Equipment and supplies available for learning	12.1	72.7	33

In general, middle school teachers indicated that the project interventions did have at least a moderate impact on their teaching and a major impact on the equipment and supplies available to them for learning. Teachers indicated that as a result of GEAR UP project experiences, they are more knowledgeable of the curriculum and instructional delivery methods and have equipment and supplies needed for student learning. During the annual evaluation interviews of teachers when cohort students were completing their 8th grade year (March 2002), the impact of the project on teaching is reported to have been significant for many teachers. Examples of typical

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comments to interview questions addressing the impact of the project on teachers include the following:

- *"I was not a hands-on teacher before, but with these calculators I find that easy to do."*
- *"You will never know the impact of this training – this has enabled me to improve greatly, and it shows in my class of students."*
- *"I teach differently now – it is much more hands-on, and the kids find it interesting and get more involved. For example, the kids build a big cell in class, then they now have something to draw on in their experiences for the future."*
- *"These kids are now excited about Science. They take notes; they read a novel, they see the plan, and it has all changed the way we teach."*

From the perspective of Fullan's framework for identifying meaningful change, we find evidence that these GEAR UP project middle schools experienced progress in each of the three change dimensions. Teachers received substantial instructional equipment and supplies, and these materials and supplies were used. In fact, the materials and equipment helped teachers to change their pedagogical approach to a more "hands-on" teaching style. Teachers, parents, school administrators and students corroborate the use of the equipment and new teaching strategies. Teachers tended to report that they teach differently due to their experiences in the program. Teachers also reported that they have expanded their content knowledge due to the GEAR UP training and that content has been re-aligned with state tests. School administrators, students and the parents also noted some of these changes and commented upon them favorably. Moreover, there is at least some evidence that core teaching and pedagogical assumptions were being changed by teacher comments that included phrases such as: *"I teach differently now," "I was never a hands-on teacher before,"* and *"You will never know the impact of this training."*

Research Question 3: How do middle school teachers and school administrators view the overall effectiveness of the project one year later?

During the 12-month period after the GEAR UP project terminated at the middle schools, the middle school teachers and school principles were not directly involved with the continuing interventions of the GEAR UP project. Before the project migrated to the high school level, project staff advised middle school teachers and principals that they could no longer participate in the project activities and receive GEAR UP benefits as they were no longer serving the Class of

2006 cohort. (Only those teachers and schools currently serving cohort students are eligible to participate in the project.) In essence, the project terminated for middle school teachers when the cohort left the middle schools.

The project and its related resources and initiatives transferred to the high school after the spring of 2002 along with the cohort. As high school freshmen, the GEAR UP student cohort continued to receive project experiences through a variety of project interventions similar to what they experienced in the 7th and 8th grades. However, only the high school teachers directly serving the cohort received project sponsored benefits such as professional development and instructional equipment and supplies. While there were 14 project middle schools serving the cohort in the 7th and 8th grades, there are now only three project high schools educating the Class of 2006.

To determine the extent of perceived effectiveness of the project, GEAR UP project evaluators surveyed all previous GEAR UP middle school teachers and interviewed four of the 14 the middle school principals previously serving the cohort. By spring 2003, middle school teachers and administrators had approximately 12 months of time for reflection on the program. During the year the cohort was in their first year in high school (i.e., the 2002-2003 school year), GEAR UP project staff focused their time and resources on the challenge of transitioning the project to the high school level; they report minimal contact with any of the middle school teachers and administrators. However, since these middle schools were in the same county as the project high schools, middle school teachers and principals would have been expected to continue to be aware of the project and its activities, as they would generally be aware of any major project in their school system. Beyond such general information that might have been available to all system teachers and administrators, the GEAR UP project staff reported that they did not implement any specific strategies for sustainability of the project at the middle schools during the 2002-2003 school year.

Middle School Teacher Perception of Project Impact on Teacher Effectiveness (One Year Later)

One year after the project terminated at the middle schools, the middle school teachers who previously served the cohort in 7th and 8th grade continued to view the project favorably. Virtually all of the 7th and 8th grade project teachers participating in the follow-up survey indicated that they viewed the program favorably from the perspective of its effectiveness (Table 7).

Table 7: Middle School Teacher Perception of GEAR UP Effectiveness One-Year After Project Termination

Teacher Ratings of Program's Effectiveness	% (N=39)
Very Effective	64.1
Effective	33.3
Somewhat Effective	2.6
Not Effective	0

Approximately, two-thirds of the respondents indicated that the project was "very effective," another third ranked the program as "effective," and less than three percent viewed the project as only "somewhat effective." Significantly, none of the respondents indicated that they perceived the project to be "not effective" one year after its termination.

The follow-up teacher survey also addressed the project's effectiveness from the perspective of its perceived impact on teachers' performance. The respondents indicated that the program did have an impact on making them better middle school teachers. One year after the program concluded, approximately two-thirds of the middle school teachers reported they are better teachers as a result of their GEAR UP experiences (Table 8).

Table 8: Are You a Better Teacher as Result of GEAR UP Experiences?

Are You a Better Teacher Due to GEAR UP ?	% (N=39)
Definitely	66.7
Somewhat	28.2
Not At All	5.1

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Approximately two-thirds of the teachers reported that they were "definitely" better teachers due to their GEAR UP experience, another 28 percent define themselves as "somewhat" better. Significantly, only 5.1 percent do not perceive themselves to be better teachers due to their project experiences.

Middle school principles also reported a positive view of the project one year after it terminated at their schools. School administrators focused on a broader perspective of the program and often indicated that the GEAR UP project staff were a major reason for their positive perceptions of the program. Examples of typical comments of GEAR UP project middle school principals include: "*The program had a positive impact on teaching methods, materials and equipment,*" "*We refocused the school through GEAR UP,*" "*I wish GEAR UP could involve more students from more grades,*" "*I cannot say enough good things about the program and staff.*" Significantly, no negative comments were offered by any of the middle school principals.

One year after project termination, these key project participants who had served the GEAR UP cohort during their 7th and 8th grade years continued to view the project favorably. Teachers indicated that the project made them better teachers. School administrators also offered an overall positive view of the project, and tended to note the changes in teaching methods and instructional equipment. We also find some evidence that principals used the GEAR UP project to enhance and "refocus" their middle schools.

Research Question 4: Approximately one year after the project terminated at the middle schools, to what extent were project elements sustained?

Residual project impacts reflect the continued influence of interventions conducted during the project's time at the middle schools. There are two aspects to viewing the sustainability of a project, especially in the relatively short timeframe of a year or two. The first aspect is to determine if the project activities conducted during the project years are continuing to have an impact. For example, teacher professional development addressing content knowledge would be expected to still be impacting the classroom if the teachers retained and used the content knowledge they gained. This is a residual impact. The second aspect is to determine to what extent project activities have continued in some form beyond the support of the project. These are viewed as sustained impacts – the continuation of activities in at least some form directly as the result of previous project activities. For example, if teacher professional development

introduced "hands-on" teaching and the teachers continued to use this teaching method on their own after the project terminated, they are continuing project initiatives based upon their own initiative. This is evidence of project element sustainability.

Residual Impacts of GEAR UP

GEAR UP cohort middle school teachers reported that many project influences have been continued/maintained after the project left their schools (Table 9). These include the continued influence of curriculum and instructional delivery training initiated through professional development, the use of project instructional materials and equipment provided by the project, as well as continued college and career awareness activities. GEAR UP equipment, purchased when the cohort was at their school is still available to middle school teachers (almost 90% of teacher survey respondents confirmed the continued use of equipment). Similarly, over 66 percent of teachers also reported a continued influence of parent involvement activities/strategies, strategies that were introduced to the school through GEAR UP. Almost 90 percent of teachers report continued influence of training related to instructional delivery. Project efforts in support of curriculum alignment in the areas of Language Arts, Biology, and Mathematics have also been sustained; teachers and principals indicated that the Gateway - related curriculum remained intact for the class following the GEAR UP cohort (Class of 2007).

Table 9: Level of Continuing Influence of GEAR UP Initiatives Reported by Teachers

Level of Continuing Influence	(%) Moderate or Major	N
Equipment for instruction	92.3	39
Hands-on instruction	92.3	39
Training on instructional delivery methods	89.7	39
Professional development	84.6	39
Curriculum training	84.6	39
Gateway training	84.6	39
College awareness activities	82.1	39
Enrichment activities	81.4	38
Career interest activities	74.4	38
Field trips	64.1	38
Parent involvement activities	61.6	36

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Teachers reported other project elements as having continuing or residual impacts (Table 9). Unfortunately, these data do not provide information on the nature of ongoing the impact (i.e., is the continuing impact simply a reflection of teacher awareness and knowledge levels due to previous exposure to project initiatives). However, these data provide a baseline for future sustainability studies related to the project middle schools and highs schools.

Sustained Project Activities (Activities that Continued)

Sustained activities are defined for the purposed of this study as those activities that continued after the project left the middle school (i.e., activities that were formerly supported by the project that have continued). The data related to sustained (i.e., continued) activities tell a somewhat different story. While teachers reported continuation of use of equipment and hands-on instruction, other project intervention activities show significant decline (Figure 10).

Table 10: GEAR UP Activities that Continued as Reported by Teachers

GEAR UP Project Activity That Continued?	YES (%)	N
Use of GEAR UP instructional equipment	89.7	39
Hands-on instruction	86.1	39
College awareness activities	54.3	39
Career Awareness activities	54.3	39
Professional development	51.4	39
Enrichment activities	37.1	39
Field Trips	33.3	39

When the GEAR UP cohort was at the middle schools, all of the cohort teachers received GEAR UP sponsored professional development training. One year later, approximately half of the cohort teachers surveyed (51.4%) report participation in professional development activities. Significant decline is also reported related to student participation in enrichment activities. When the GEAR UP cohort program was in the 8th grade, all students participated in a wide variety of enrichment activities (field trips, plays/musicals, college visits, etc.). One year after the cohort left these schools, approximately one-third of the cohort teachers reported the continuance of enrichment activities. These findings are important. In the previous annual project evaluations, the evaluation team noted that these student enrichment activities were key project elements promoting school interest, college awareness, career awareness, etc. that were well received by students, teachers, and parents.

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Principals of these previous GEAR UP middle schools corroborate the continued use of GEAR UP equipment and the continuing application of the "GEAR UP" hands-on instruction. No other specific GEAR UP project elements were reported by principals to be ongoing at levels approaching what they were when the project was active in these middle schools. Essentially only two initiatives (instructional equipment use and hands-on instruction) are being sustained at, or near, project intervention levels.

Impact on Current Students

Given the departure of the project from the middle schools, and the levels of perceived residual impacts and sustained activities, the researchers attempted to determine what impact the middle schools' loss of the GEAR UP project was having on the students who entered 8th grade one year after the cohort (i.e., the students in the Class of 2007). The teacher survey one year after the project left the middle schools asked how current 8th graders (Class of 2007) would perform (without the GEAR UP program) in comparison to the GEAR UP cohort students. Table 11 identifies their responses:

Table 11: Current 8th Graders (Class of 2007) Performance Compared to GEAR UP cohort (Class of 2006) as 8th Graders as Perceived by Teachers

Current 8th Graders Performance Regarding:	(%) Teachers Responding Lower	N
Knowledge of college	56.4	38
Career Awareness	53.8	37
Interest in careers	48.7	37
College (Intent to attend)	46.2	38
Interest in school	43.6	37
Completion of high school	38.5	37
Academic performance	38.5	37

These results suggest that there is a perception by teachers regarding changes (e.g., declines) in the perceived performance of the class of students following the cohort, students who missed out on the GEAR UP interventions. In one sense, given the continued influence of the program reported by teachers, a major drop-off on these variables one year after program termination would not be expected. However, approximately half of the teachers surveyed indicated that the class of students following the cohort in the middle schools was less knowledgeable of college,

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and has less awareness of and interest in careers. This suggests that these concerns (college/careers) are not being addressed. Approximately 40 percent of the teachers indicated that students following the cohort will be less likely to take an interest in school, perform as well academically, and complete high school. Again, these results are also important in that they establish a base - line that enable the tracking of changes in future sustainability studies.

The comments of the middle school teachers (i.e., survey comments) one year after the project terminated at the middle schools are especially enlightening on the impact of the changes brought about by the GEAR UP:

- *"I feel that current students will perform better because of the resources that GEAR UP provided. The teachers are better trained and have the materials to implement their subject."*
- *"The equipment acquired through GEAR UP will be used for many years."*
- *"I really enjoyed working with the GEAR UP program and I am continuing to use the materials I received in my class this year."*
- *"I feel that the GEAR UP program has had and will continue to have a major impact on the schools in our county. I feel that our middle schools teachers are more prepared than ever before, and have the materials to adequately teach their subject."*
- *"GEAR UP is such a super program, I just wish it had not ended here in my school. I still use all of my GEAR UP equipment that I have and [I] use the training which I received. Great program, just wish it had a longer life where I teach."*
- *"I am very thankful for the opportunities that came about because of the GEAR UP program. If the program had not come into existence, our local school would not have been able to upgrade our Science Labs."*
- *"This is the best project I have seen go through the school system. The students got a huge advantage with the GEAR UP program and the students following did also because it helped me to teach the curriculum better."*

Overall, these comments suggests that key project participants, the teachers, retain a positive view of the program one year after its termination and that at least some teachers are making attempts to continue the project elements that are in their sphere of control. Also from the perspective of teachers, there is evidence of a variety of residual project impacts but also evidence of limited sustainability. Teachers continued to use instructional equipment and supplies, and they continued the application of "hands-on" instructional methods. However, few GEAR UP interventions were sustained at, or near, project levels in these middle schools. While

teachers and principals report many positive residual influences resulting from project interventions, the lack of sustainability of interventions suggests these residuals may be short-term in duration. Future annual project evaluation studies will help answer questions regarding the continued level of residual project impacts given the decline in the project interventions that established them (e.g., professional development promoting subject content knowledge and delivery, student enrichment activities and interventions, and instructional equipment and supplies).

Research Question 5: What barriers and challenges were confronted by high school teachers and principals in sustaining project elements?

Almost 80 percent of the teachers reported that the greatest challenge to sustaining GEAR UP activities related to the lack of financial resources (Table 12).

Table 12: Challenges Teachers Perceive Regarding GEAR UP Project Sustainability

Sustainability Challenges	(% YES)	N
Finance	79.5	38
Time	48.7	38
Staff support	33.3	38
Lack of interest	23.1	38

Similarly, principals continually noted the challenge of finding resources for even relatively low cost instructional consumables as well as for professional development offerings, field trips and other student enrichment activities. As one principal stated, "We have the equipment and the know-how; now we lack the consumable supplies." Approximately 50 percent of teachers also viewed the lack of available time as a barrier to sustainability. One-third of the teachers identified the lack of staff support to sustain project activities as a major challenge. The challenge least likely to be identified by teachers was lack of teacher interest (mentioned by 23.1 percent of the respondents).

Some previous GEAR UP middle school teachers reported that the current 8th grade (non-cohort) students will be negatively impacted by not experiencing the GEAR UP program. For example, some teachers reported that current 8th graders will be less likely to graduate from high school, attend college, or choose a career early. Interestingly, these teachers are identifying some

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of the same local concerns that led to the initial GEAR UP grant proposal. Other stakeholders of the project already speak in the past tense, almost as if the project and its impact is already completed. A one teacher offered: "*The GEAR UP program is an exceptional program that I wish could sustain through many years. The training and materials were great.*" Even student activities interventions as straightforward as GEAR UP field trip experiences are now seen by teachers as beyond local capacity: "*I miss having financial support in planning field trips. Plays and musicals are usually very costly. Our students cannot always pay for field trips, so we have to limit our trips.*" For school districts lacking needed resources, the inability to continue and sustain school change activities that have proven successful and popular among teachers and other stakeholders seems to be especially frustrating.

CONCLUSIONS AND IMPLICATIONS

While this study represents a first view of project sustainability, there are some initial conclusions that appear appropriate based upon these findings. In accordance with these conclusions, we suggest some related implications from the perspective of the national GEAR UP program and the local University of Tennessee partnership.

CONCLUSIONS

Several conclusions are offered with regard to the findings of this initial study of project sustainability:

1. One year after the project terminated at the 14 middle schools with the progression of the cohort to local high schools, the middle school teachers and administrators continued to offer a positive, favorable attitude towards the project's activities and interventions.

   Teachers tend to reflect that they perceived themselves to be better teachers because of their GEAR UP project experiences. Teachers indicated that the project professional development, with its hands-on framework and alignment to the content of state high school exit examinations, continues to positively influence their teaching one-year later. School principals reported positive perceptions of GEAR UP one year after the project left their school. Principals report that they miss the project. They also report that elements of the school had been changed due to GEAR UP and cite the continued application of hands-on instruction and the ongoing use of the equipment supplied by the project.

2. We find evidence of residual project impacts of the program, but we also find that few project interventions were sustained at some meaningful level one-year later.

   Teachers and school administrators report positive residual impacts of the project. These residual impacts include the availability of instructional equipment, teaching focused on re-aligned curricula, as well as the continuing impact of related project initiatives such as parent involvement. Sustained activities are essentially limited to hands-on teaching and the continued use of instructional equipment. The re-aligned curricula linked to state Gateway examinations remain in place. However, most project sponsored student interventions have not continued anywhere near the same level they were provided to the cohort by project participants. We find major declines at the middle school in terms of student initiatives

promoting enrichment activities, especially those that require significant resources and/or interventions that require students to travel from the middle schools. A popular and favorably received GEAR UP project activity, the summer academy, has not continued. From the perspective of teachers, the professional development activities that were at the core of the GEAR UP strategies promoting teacher development have also dropped off significantly.

3. Teachers and school administrators reported that there are three major barriers to sustaining GEAR UP initiatives: the lack of resources, the lack of time by middle school teachers and school administrators, and the lack of overall project leadership and staff support.

   These barriers to project sustainability indicate the potential magnitude of the challenges schools confront in continuing project interventions that are perceived to be useful and meaningful after project resources are terminated. For interventions to continue, ongoing financial resources are certainly required, but there is also a need for strategic leadership and administrative support. GEAR UP schools across the country have many things in common, especially a lack of local resources for meeting current needs, let alone new initiatives. It would be more than a little unrealistic to expect schools to continue or sustain activities requiring substantial additional resources without helping them to develop a strategy for acquiring such resources beyond local financial capacity. The GEAR UP project staff are essentially prohibited from providing project benefits to teachers and schools not currently serving the cohort. Moreover, due to the growing numbers of students in the cohort and tremendous administrative challenge of moving the project to the local high schools, GEAR UP project staff were limited in their ability to initiate and support strategies promoting the sustainability of project initiatives at the middle schools.

4. The status of sustainability of GEAR UP initiatives at GEAR UP middle schools is currently at a critical juncture. From the perspective of sustainability, these schools need immediate support or the probability of long-term sustainability is in serious jeopardy.

   GEAR UP middle schools are currently at a critically important crossroad with regard to sustaining project elements. There are several serious challenges to retaining the benefits and momentum provided by the project. For example, the project's professional development opportunities made available to the middle school teachers will need to be reinforced or the effects of previous efforts will gradually decline. Teachers leave schools for a number of reasons including transfer and retirement. New teachers entering the middle schools will also need to be trained. The instructional equipment provided by GEAR UP will gradually wear

out and need to be replaced. Even changes that appear to have a longer shelf life, such as curricular content/alignment initiatives, will eventually need to be updated.

5. GEAR UP initiatives will not be sustained at the high school level without substantial planning, leadership, as well as financial and staff support.

   Without substantial planning and new school resources, there is a very limited chance that project initiatives will be sustained at the high school when the project terminates with the graduation of the cohort in 2006. Unfortunately, this will be the case no matter how positively the project is perceived by students, teachers, and other school stakeholders. Two key elements of the needed planning for project sustainability include: 1) the acquisition of new resources to support project initiatives; and 2) the filling of roles and responsibilities needed to promote, support, and manage sustained activities in a manner deemed most relevant and useful to the high schools themselves.

6. There is at least some evidence that suggests that the GEAR UP project's efforts in these middle schools are consistent with the three dimensions of meaningful school change identified by Fullan (2003).

   On the first dimension (new teaching materials), the project interventions introduced new instructional materials and resources. We find evidence that these new instructional materials and resources are still in use. On the second dimension (new teaching approaches), GEAR UP introduced hands-on instructional approaches through professional development interventions and supported curricular development and re-alignment. These approaches and curricular changes are continuing according to the teachers and school administrators. On the third dimension, (the alteration of pedagogical assumptions or beliefs) we find some evidence that underlying assumptions about teaching may have changed. When teachers describe themselves as being "different as a teacher" due to the program, this may in fact be an indication that something more has occurred as a result of the project than simply the adoption of a new teaching approach and the use of new equipment and supplies. There is some evidence that the UT GEAR UP project has initiated some level of meaningful school change.

IMPLICATIONS

Although this is an initial study of sustainability, there are several initial implications that appear to be realistic at this time. These include:

1. The GEAR UP project's success in these middle schools has not prompted the development of external constituencies supporting/demanding the continuation of initiatives.

   The challenges to sustainability encountered by this project suggest the credibility of the research literature addressing the important roles of leadership, resources, and technical capacity with regard to the sustainability of school change. While there is significant interest in sustaining GEAR UP project initiatives at the school building level, one year after the project left the middle schools there appeared to be no authoritative external constituency available to help promote and support school efforts.

2. Middle school project participants (principals, teachers) developed high expectations for the program. With the termination of the program, expectation levels will decline as the participants become increasingly distanced from project interventions.

   The literature addresses the individual or personal impact of change experienced by participants, especially from the perspective of the uncertainty and ambiguity that teachers experienced during the change process. We also find a sense of loss expressed by these middle school teachers and principals – a sense of loss by participants who expressed that they truly miss the GEAR UP partnership program and staff. One principal expressed concern about the "loss" of the program from the perspective of "its focus on the kids." Another reported that the special GEAR UP focus on one class of students now is noticeably absent in his school.

3. Academic performance expectations for the cohort were not expected to, and did not, result in short-term improvement in 8th grade scores on standardized tests.

   Principals noted that there is little difference in 8th grade standardized TCAP scores since the GEAR UP started. However, they also noted that the GEAR UP project was always focused on preparing students for high school Gateway examination performance. The motivation for sustainability may have increased if standardized test scores had demonstrated improvement. Overall, principals also tend to be optimistic about GEAR UP cohorts' performance on their Gateway exams in high school.

4. **From the perspective of the national GEAR UP program, there are several positive findings related to this project and a serious concern about the continuation of initiatives when projects terminate.**

Among the findings of this research effort that have implications for the national GEAR UP program, probably the most important implication is that the project resources provided to the UT partnership were put to work in these middle schools, and these resources were used to address the key challenges of the schools. The project interventions also have been well received. Teachers, students, school officials and other stakeholders perceived the project initiatives to be effective and useful to teachers and students. Moreover, the project interventions appear to be aligned with the possibility of meaningful school change; we have evidence that the project brought about positive changes in instruction and changes in the way teachers approach their work in the classroom.

However, this research also suggests that GEAR UP partnerships across the nation, and local school systems participating in them may have a major challenge to address, if the project's proven initiatives are to be sustained. If other GEAR UP partnership projects across the nation have had sustainability experiences similar to these Tennessee middle schools (e.g., the lack of specific strategies and resources for promoting the sustainability of GEAR UP initiatives), the potential favorable impact of the national GEAR UP program may be at risk. Sustainability will require a major commitment on the part of all participants. We note that national program is addressing sustainability. (For example, the national GEAR UP capacity building workshop scheduled for 2004 has a major strand related to project sustainability.)

The literature and this study suggest that sustainability is an extremely challenging task. There may need to be serious consideration as to the types of interventions that are introduced. Interventions that are unlikely to be sustained due to resource constraints may need to be re-considered, or appropriate substitutes need to be created that will have a greater chance at being sustained. The collaborative relationship with business partners might be a possible source of resources. The seeking of new grants should be considered along with the finding of ways for other projects (e.g., federal, etc.) to pick-up support. The national program can play a major role in these efforts.

5 Agencies sponsoring grant projects need to assume more responsibility for promoting sustainability as an integral element of the grant process.

Agencies should consider taking a more proactive role to ensure that project sustainability is an integral element of the project specification and approval process. Agencies should consider effective strategies that could be easily incorporated into the grant development process to address long-term sustainability. For example, possible strategies might include the refocusing of financial matching requirements. This might require grantees to set aside a portion of their matching funds in an account restricted for the continuation of activities after grant funding is terminated. Agencies could also require grantees to develop and implement a meaningful sustainability plan during the active (funded) phase of the grant (these plans could also be monitored, assessed, and improved as part of the grant's formative evaluation process). Due to the vested interest of the funding agencies in the continuation of their reform initiatives, they need to consider some greater level of creativity and effort to promote program sustainability within the project design/approval process.

Regardless of the strategy used, these middle schools need help and support immediately; furthermore, strategies to sustain current project activities at the high school level may prove to be even more challenging given the larger size and complexity of high schools. If the issues of project sustainability are not addressed before the class of 2006 graduates, GEAR UP is at risk of becoming the next casualty in the unrelenting and apparently unforgiving cycle of educational reform.

6 School systems need to reflect and focus on strategies they can initiate to promote the continuation of proven initiatives within the limitations of available resources.

As indicated by the literature as well as the findings of this study, there are other equally important drivers of project sustainability beyond financial resources. Critical sustainability infrastructure elements of leadership, technical support, constituency development, etc., seem especially suited to the administrative and support capacity represented within the typical functions of school systems. School systems also have proven abilities in securing the assistance of external organizations (as indicated by their participation in grant programs such as GEAR UP). Additionally, school systems tend to have relationships with higher education institutions that may offer the possibility of more creative approaches to finding non-financial sustainability resources. For example,

many colleges and universities offer degree programs related to educational administration, curriculum, evaluation, etc., and students in these programs may need or desire meaningful internship/practicum experiences. Further, local retired teachers and other professionals may provide a cadre of volunteers who are looking for meaningful opportunities to serve their community schools. Even school systems with the most limited financial resources can develop low-cost strategies to acquire the critical human resources they need to assist in the continuation of project initiatives.

7. Project staff should consider how they can creatively promote project sustainability while remaining in full compliance within the requirements of the granting agency.

Project staff have developed close and meaningful relationships with teachers and school administrators. In this regard, we note the comments of middle school principals and teachers reflecting how much they "miss" their interactions with project staff. These relationships still continue even though the project has been terminated at their schools. These informal channels of communication appear to offer tremendous opportunities for guidance and knowledge sharing related to project sustainability. The technical expertise and experience of project staff, combined with their detailed knowledge of the local school cultures, makes them an ideal source of information related to the continuation of project elements. Moreover, some of the concerns expressed in the literature regarding the failure of reforms to "fit-in" with local school cultures can be most effectively addressed by project staff who are viewed by school participants as "one of us."

APPENDICES

A. National GEAR UP Program Goals

B. University of Tennessee GEAR UP Partnership Middle Schools

APPENDIX A: NATIONAL AND UT PARTNERSHIP GEAR UP PROGRAM GOALS

- Promoting equal access to education and educational excellence through concerted partnership efforts on behalf of low-income students;
- Helping ensure that all students have access to rigorous courses that prepare them for college;
- Providing information early to students and parents about college options, required courses, and financial aid, including providing students with 21st Century Scholar Certificates indicating the amount of Federal financial aid that students may be eligible to receive;
- Developing a solid academic foundation for college in the schools through challenging courses, well-prepared teachers, and modern learning tools;
- Promoting, as needed, reforms and improvements in the school curriculum as well as in teaching and learning methods
- Promoting strategies, programs and activities for increased parent involvement in preparing students for college;
- Providing intensive, individualized and coordinated support to students that includes mentoring, counseling, and tutoring;
- Providing ongoing staff training and professional development opportunities to help teachers raise expectations for all students;
- Establishing strong Partnerships that involve a long-term commitment and a meaningful role for each Partner in improving students' preparation for college;
- ***Building local and State efforts and encouraging local and State investment to sustain GEAR UP activities and services beyond the Federal grant period;***
- Designing comprehensive projects informed by research on effective practices that include careful evaluations to enable continuous improvement and to guide project replication

Source: National Council for Community and Education Partnerships (web page: ---- (http://www.edpartnerships.org/initiative/programinfo.cfm?id=3)

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Appendix B: Middle Schools Participating in the in the University of Tennessee GEAR UP Partnership Program

Cocke County

	# of Students
Bridgeport Elementary	22
Centerview Elementary	30
Cosby Elementary	53
Del Rio Elementary	18
Edgemont Elementary	65
Grassy Fork Elementary	18
Northwest Elementary	26
Parrotsville Elementary	64
Smoky Mountain Elementary	17

Scott County

	# of Students
Burchfield Elementary	43
Fairview Elementary	46
Huntsville Middle School	74
Robbins Elementary	41
Winfield Elementary	21

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